

WHAT IS CLAIMED IS:

1. A computer-readable medium having computer-executable instructions, comprising:

providing a plurality of notations, each notation
5 comprising a visual representation of a model element;
providing a plurality of semantics, each semantic
comprising a meaning in a modeling environment of a model
element; and

associating a selected notation with a selected semantic
10 to provide a model element having a visual representation and
a meaning in a modeling environment.

2. The computer-readable medium of claim 1 wherein the
selected notation and the selected semantic each comprise an
15 object, and wherein associating the selected notation with the
selected semantic comprises connecting the selected notation
object to the selected semantic object via object interfaces.

3. The computer-readable medium of claim 2 wherein the
20 objects are connected to a paradigm server.

4. A computer-readable medium having stored thereon a plurality of data structures, comprising:

a notation data structure having a set of at least one interface for accessing a plurality of methods therein; and

5 a semantic data structure having a set of at least one interface for accessing a plurality of methods therein, the semantic data structure begin associated with the notation data structure to provide a model element.

10 5. The computer-readable medium of claim 4 wherein the notation data structure comprises a notation object and the semantic data structure comprises a semantic object, and wherein a paradigm server associates the notation object with the semantic object to provide the model element.

15 6. The computer-readable medium of claim 5 wherein the paradigm server validates that the semantic object can be associated with the notation object.

20 7. The computer-readable medium of claim 4 wherein one of the methods of the notation data structure provides information identifying a library of notations to which the notation data structure belongs.

8. The computer-readable medium of claim 4 wherein one of the methods of the notation data structure provides type information corresponding to the notation data structure.

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9. The computer-readable medium of claim 4 wherein one of the methods of the notation data structure provides subtype information corresponding to the notation data structure .

10 10. The computer-readable medium of claim 4 wherein one of the methods of the notation data structure provides a name of the notation data structure.

11. The computer-readable medium of claim 4 wherein one
15 of the methods of the notation data structure provides information indicative of whether the notation data structure is capable of being resized.

12. The computer-readable medium of claim 4 wherein one
20 of the methods of the notation data structure provides information indicative of whether the notation is capable of visually indicating selected and unselected states.

13. The computer-readable medium of claim 4 wherein one of the methods of the notation data structure provides information indicative of whether the notation is capable of being in a visible or a hidden state.

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14. The computer-readable medium of claim 4 wherein one of the methods of the notation data structure provides information indicative of whether the notation is capable of visually indicating hover-related states.

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15. The computer-readable medium of claim 4 wherein one of the methods of the notation data structure provides information indicative of whether the notation is capable of visually indicating attach-points at which arcs can connect.

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16. The computer-readable medium of claim 4 wherein one of the methods of the notation data structure provides information indicative of a minimum and maximum size of the notation.

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17. The computer-readable medium of claim 4 wherein one of the methods of the notation data structure provides information indicative of whether the notation is capable of zooming operations.

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18. The computer-readable medium of claim 4 wherein one of the methods of the notation data structure provides information indicative of supported color depths.

10 19. The computer-readable medium of claim 4 wherein one of the methods of the notation data structure provides information indicative of an iconic representation.

15 20. The computer-readable medium of claim 4 wherein one of the methods of the notation data structure provides information indicative of whether the notation is capable of doing animations.

21. The computer-readable medium of claim 4 wherein one of the methods of the notation data structure provides information indicative of a number of states that the notation can visually indicate.

22. The computer-readable medium of claim 4 wherein one of the methods of the semantic data structure provides information identifying a library of semantics to which the semantic data structure belongs.

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23. The computer-readable medium of claim 4 wherein one of the methods of the semantic data structure provides type information corresponding to the semantic data structure.

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24. The computer-readable medium of claim 4 wherein one of the methods of the semantic data structure provides subtype information corresponding to the semantic data structure.

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25. The computer-readable medium of claim 4 wherein one of the methods of the semantic data structure provides a name of the semantic data structure.

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26. The computer-readable medium of claim 4 wherein the semantic data structure includes a set of at least one requirement related to notation data structures which can connect thereto.

27. The computer-readable medium of claim 26 wherein one requirement of the set requires that the notation data structure be resizable.

5 28. The computer-readable medium of claim 26 wherein one requirement of the set requires that the notation data structure be capable of visually indicating a selected or an unselected state.

10 29. The computer-readable medium of claim 26 wherein one requirement of the set requires that the notation data structure be capable of being in a visible or a hidden state.

15 30. The computer-readable medium of claim 26 wherein one requirement of the set requires that the notation data structure be capable of visually indicating at least two distinct hover-related states.

20 31. The computer-readable medium of claim 26 wherein one requirement of the set requires that the notation data structure have a number of attach-points at which arcs can connect.

32. The computer-readable medium of claim 26 wherein one requirement of the set requires that the notation data structure support a color depth.

5 33. The computer-readable medium of claim 26 wherein one requirement of the set requires that the notation data structure be capable of doing animations.

10 34. The computer-readable medium of claim 26 wherein one requirement of the set requires that the notation data structure have a number of states.

15 35. The computer-readable medium of claim 4 wherein the model element corresponds to a node, and wherein the node includes at least one method to determine the notation data structure and semantic data structure and corresponding thereto.

20 36. The computer-readable medium of claim 4 wherein the model element corresponds to an arc, and wherein the arc includes at least one method to determine the notation data structure and semantic data structure and corresponding thereto.

37. A system, comprising:

a notation comprising a representation of a model element
in at least one modeling environment, the notation including
5 an interface configured to provide access to methods therein;

a semantic comprising a meaning of a model element in at
least one modeling environment, the semantic including an
interface configured to provide access to methods therein; and

a paradigm server, the server connected to a modeling
10 environment and configured to access the methods of the
notation and the methods of the semantic via their respective
interfaces, and further configured to enable a determination
as to whether the paradigm server, notation and semantic are
each compatible, and if they are compatible, to associate the
15 notation with the semantic to provide a model element in the
modeling environment.

38. The system of claim 37 wherein the notation and the
semantic each comprise an object.

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39. A computer-implemented method, comprising:
selecting a selected notation from a plurality of
notations, each notation comprising a visual representation of
a model element;

5 selecting a selected semantic from plurality of
semantics, each semantic comprising a meaning in a modeling
environment of a model element; and

validating whether the selected notation can be
associated with the selected semantic.

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40. The method of claim 39 wherein the validating is
performed by a paradigm server.

41. The method of claim 39 wherein validating determines
15 that the selected notation can be associated with the selected
semantic, and further comprising, associating the selected
notation with the selected semantic to provide a model
element.

20 42. The method of claim 41 wherein the associating is
performed by a paradigm server.

43. The method of claim 41 wherein the selected notation
and the selected semantic each comprise an object, and wherein
associating the selected notation with the selected semantic
comprises connecting the selected notation object to the
5 selected semantic object via object interfaces.

44. A computer-readable medium having computer-
executable instructions for performing the method of claim 39.